Power Solutions for Traffic and Intelligent Transportation Systems

TOTAL POWER SOLUTIONS BY ALPHA TECHNOLOGIES LTD.

member of The Group™

Power

alpha TECHNOLOGIES
7700 Riverfront Gate

Alpha Technologies Ltd.

Company Overview

For over 35 years, Alpha Technologies has been an industry pioneer and global leader in the design and manufacture of AC and DC power. Our distinctive excellence is the ability to innovate and quickly deliver optimized solutions for our customers' unique powering challenges in the Traffic, Cable Broadband, Telecom, Security, Industrial and Renewable Energy industries.

Alpha's TL 9000 certified quality system, award-winning product strategy and continuous improvement/operational excellence program focuses on achieving complete customer satisfaction and supplying solutions of the highest quality, value and reliability.

The Alpha Group

The Alpha Group represents an alliance of independent companies who share a common philosophy – to create world class powering solutions.

Collectively, Alpha Group members develop and manufacture AC, DC and renewable power conversion, protection and standby products. Applications for these products include Broadband, Telecom, Commercial, Industrial and Distributed Generation for a worldwide customer base. In addition to these core specialties, Alpha Group companies provide a complete range of installation and maintenance services.

Members of The Alpha Group include Alpha Technologies Ltd., Alpha Technologies Inc., Alpha Energy, Alpha Industrial Power, Altair Advanced Industries Inc., Alpha Technologies S.A., OutBack Power Technologies Inc., Alpha Technologies Europe Ltd., Alpha Technologies GmbH, Alpha Innovations Brasil, Alphatec Ltd., Alphatec Baltic and Alpha Tek ooo.

TECHNOLO

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Power Solutions for Traffic and Intelligent Transportation Systems

Alpha Technologies has been providing effective power solutions that serve the unique demands of the Traffic and ITS industry for over 15 years. Our products are backing up more than 20,000 intersections throughout North America as well as many other locations around the world.

Alpha's power solutions allow operators to better manage resources and reduce operating expenses by improving traffic controller reliability and reducing technician call outs that occur during power outages and fluctuations.

Designed by outdoor power experts, Alpha's line of rugged outdoor uninterruptible power supplies (UPS) and backup power solutions are designed to meet the stringent requirements of the traffic industry, reliably performing in the most extreme environmental conditions such as wind-driven rain/snow, frigid temperatures and searing desert heat.

Alpha offers proven solutions to fit any Traffic and ITS application:

Port St. Lucie, FL, USA
Shown with Stand Alone Battery Backup System
(Alpha Outdoor Enclosure Side Mount 6, Alpha FXM UPS Module, AlphaCell™ batteries)

- Outdoor and indoor UPS power modules with Ethernet/SNMP remote monitoring and communication capabilities
- A wide range of weather-hardened, secure enclosures that permit flexible configuration and customization
- Transfer and bypass switches that allow safe switching from utility to emergency power
- Curb side and portable gas-powered generators for extended run times at remote locations
- AlphaCell™ batteries featuring advanced gel-cell technology that provides superior working life and reliability
- AlphaGuard™ battery management technology to balance and optimize battery performance
- Battery heater mats to optimize battery performance in cold climates
- Battery test equipment for maintaining and diagnosing system problems

Protect your intersection and keep traffic flowing

Power disturbances at busy traffic intersections and loss of traffic signal operation not only creates potentially dangerous conditions for motorists but immediate gridlock and congestion on arterials and outlying intersections.

Each year in the US, traffic control system failure accounts for tens of thousands of automobile accidents, personal injury/fatalities and billions of dollars in claims.

Benefits of UPS backup at Intersections

- Conditions and regulates incoming commercial power for a more reliable intersection
- Sustains power to operating systems and controller electronics until utility power is restored
- Maintains traffic flow and intersection safety
- Reduces or minimizes severity of accidents
- Reduces expenses by eliminating ghost service call-outs or expensive after hours calls

Alpha FXM UPS Family

Alpha's FXM family of uninterruptible power supplies (UPS) are designed to provide clean, reliable backup power for Traffic applications. Featuring an automatic voltage regulator (AVR), each FXM UPS provides power stability in varied power conditions as well as the ability to switch to emergency backup power without interrupting power to the intersection. Choose the Alpha FXM 650 or 1100 for backing up a typical intersection or choose the Alpha FXM 2000 for larger intersections or railway crossings with multiple turn lights and other additional power requirements.

The factory installed Ethernet/SNMP card allows communication with the UPS remotely through any web browser and is capable of notifying up to four different email addresses. Outgoing notifications can be customized with selectable severity levels and triggered by events, faults and/or alarms.

For optimal control and performance of your UPS system, the Ethernet/SNMP card is powered by the UPS batteries' DC voltage, eliminating the need for an external power source.

Each FXM power level is available in either 120V or 230V variants, both with auto frequency detection (60Hz/50Hz).
Alpha is approved by multiple States within the US, including California Dept. of Transportation (Caltrans), Texas and many others.

Other smart features of the FXM family include:

- During periods of surge or sag in the line voltage, a wider-range automatic voltage regulation means less dependence on batteries thus lengthening battery life
- Independently programmable user inputs and dry contact relays allow controlling and tracking of key functions
- Event and alarm logging with time and date stamping simplifies and accelerates troubleshooting
- A wide operating temperature range of -40 to 74°C (-40 to 165°F)[1] is suitable for extreme operating environments
- Control and power connection panels can be rotated for viewing in horizontal or vertical mounting orientations[2]
- Temperature compensated battery charging protects batteries from over-charging at extreme temperatures, extending the life of the battery

1. Power module only. Output power derates after 55°C for FXM 650 and 1100 and after 50°C for FXM 2000 (120Vac), 55°C (230Vac).
2. The LCD panel on the FXM 650 cannot be rotated.

UPS performance advantages with Alpha's powerful firmware

Higher charger current (up to 15A selectable) on the FXM 1100 and FXM 2000

- Remote firmware updating via SNMP: no more truck rolls to get the latest product enhancements (Units with older firmware require a one-time local upgrade)
- Time remaining: "at-a-glance" information on the time remaining based on battery and load size allows users to make better decisions about backup options during an outage: truck rolls can be delayed until service is absolutely necessary
- Automatic daylight savings management: time-of-day event settings are adjusted for a shift to or from daylight savings
- IP device sense and reset function sends a ping to IP address at a user selectable interval; after exceeding pre-set number of failed attempts, the device is power cycled

FXM 350

Rugged UPS Module

- > 350 W/VA UPS module designed to operate in extreme environments and provide maximum flexibility while ensuring critical loads remain protected and running during power outages and other power disturbances
- > Unsurpassed flexibility with dual 120Vac & 24Vac outputs
- > Wide range Automatic Voltage Regulation (AVR) lengthens battery life by providing protection without transferring to backup mode during voltage surge or sag
- > Local and remote monitoring and control via USB port and Ethernet SNMP interface
- > Temperature compensated battery charging protects batteries from overcharging or undercharging at extreme temperatures, extending the life of the battery
- > Independently programmable control and report dry contacts allow monitoring and controlling of key functions

Consult your Alpha representative for P/N configurations

Electrical

>120Vac Model
Battery string voltage:.....48Vdc or 24Vdc
Nominal voltage: 120Vac
Frequency: .....60/50Hz ±5% (auto-detection)
Input:
Voltage range (w/o transferring to battery mode): 88 to 152Vac
Current:
• FXM350-24:.....5.3A
• FXM350-48:.....5.7A
Output:
Waveform:.....Pure sinewave
Nominal voltage: .....Dual 120Vac, 24Vac
Voltage regulation: .....±10%
Power at 50°C:.....350W/VA Total
• 24Vac: .....260W/VA (max)
• 120Vac: .....350W/VA (max)
Frequency: .....Output frequency = Input frequency

>230Vac Model
Battery string voltage:.....24Vdc
Nominal voltage: 230Vac
Frequency: .....60/50Hz ±5% (auto-detection)
Input:
Voltage range (w/o transferring to battery mode): 151 to 282Vac
Current:.....2.7A
Output:
Waveform:.....Pure sinewave
Nominal voltage: 230Vac, 24Vac
Voltage regulation: .....±10%
Power at 50°C:.....350W/VA Total
• 24Vac: 260VA (max)
• 230Vac: 350VA (max)
Frequency .....Output frequency = Input frequency

Mechanical

Mounting: ..... 19" or 23" rack with the addition of ears for rack mounting
Dimensions:
mm:..... 88.14H x 341.88W x 211.74D
inches:..... 3.47H x 13.46W x 8.34D
Weight:..... 8.62kg (19lbs)

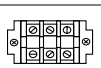
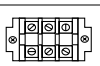
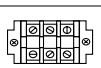
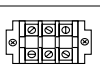
Environmental

Operating temp range:..... -40 to 74°C (-40 to 165°F)
Audible noise @ 25°C:..... <45dBa @ 1 meter (39in)

Performance

Typical output voltage THD:.. <3%
Typical efficiency..... >96%
Typical transfer time..... <5ms

Power Connector Options

120Vac Model	**Input**	**Output**
Standard	 Terminal Block	 Terminal Block
230Vac Model		
Standard	 Terminal Block	 Terminal Block

Agency Compliance

Electrical safety:.....UL1778, CSA C22.2 No. 107.3, EN60950-1, EN62040-1-2
Marks: .....cCSAus, CE*
EMI:.....FCC Part 15/B, EN55022. Class A. EN62040-2

*CE applies to 230Vac version only

FXM 650

Rugged UPS Module

- 650W/VA UPS module designed to operate in extreme environments and provide maximum flexibility while ensuring critical loads remain protected and running during power outages and other power disturbances
- Wide range Automatic Voltage Regulation (AVR) lengthens battery life by providing protection without transferring to backup mode during voltage surge or sag
- Independently programmable control and report dry contacts allow monitoring and controlling of key functions
- Temperature compensated battery charging protects batteries from overcharging or undercharging at extreme temperatures, extending the life of the battery
- Local and remote monitoring and control via RS232 port and Ethernet SNMP interface*

Consult your Alpha representative for P/N configurations

Electrical

>120Vac Model
Battery string voltage:.....24Vdc or 48Vdc
Nominal voltage: 120Vac
Nominal frequency:.....Auto-sensing
Input:
Current:.....5.8A nominal
Voltage: .....85 to 175Vac
Output:
Voltage regulation: .....+/- 10% over input voltage range
Power at 55°C:.....650W/VA
Charge current: .....10A max

>230Vac Model
Battery string voltage:.....24Vdc
Nominal voltage: 230Vac
Nominal frequency:.....Auto-sensing
Input:
Current:.....3.0A nominal
Voltage range: .....150 to 328Vac
Output:
Voltage regulation .....+/- 10% over input voltage range
Power at 55°C:.....650W/VA

Mechanical

Dimensions:
mm:.....88H x 432W x 229D
inches: .....3.47H x 17W x 9D
Weight: 11kg (25lbs)

Environmental

Operating temp range*:.....-40 to 74°C (-40 to 165°F)
Audible noise @ 25°C:.....45dBa @ 1 meter (39in)
*Derates after 55°C

Performance

Typical output voltage THD: ..... <3%
Typical efficiency:..... >98% (resistive load)
Typical transfer time:..... <5ms
MTBF:
@ 0.0°C:.....246,206 hrs
@ 25.0°C:.....174, 955 hrs
@ 50.0°C:.....103,030 hrs

Power Connector Options

	Input	Output
120Vac Model		
Standard	Terminal Block	Terminal Block
230Vac Model		
Standard	Terminal Block	Terminal Block

Agency Compliance

Electrical safety:.....UL1778, CSA 22.2 No 107.3-03
Marks:
EMI:.....Class A FCC/CISPR [EN 50091-2:1995]

*Ethernet SNMP card is standard on the 120Vac model and optional on the 230Vac model
**CE applies to 230Vac version only

FXM 1100

Rugged UPS Module

- > 1100W/VA UPS module designed to operate in extreme environments and provide maximum flexibility while ensuring critical loads remain protected and running during power outages and other power disturbances
- > Wide range Automatic Voltage Regulation (AVR) lengthens battery life by providing protection without transferring to backup mode during voltage surge or sag
- > Independently programmable control and report dry contacts allow monitoring and controlling of key functions
- > Temperature compensated battery charging protects batteries from overcharging or undercharging at extreme temperatures, extending the life of the battery
- > Local and remote monitoring and control via RS232 port and Ethernet SNMP interface*
- > UPS panels can be rotated, improving usability and viewing convenience

Consult your Alpha representative for P/N configurations

Electrical

>120Vac Model
Battery string voltage:.....48Vdc
Nominal voltage: 120Vac
Nominal frequency:.....Auto-sensing
Input:
Current:.....9.8A nominal
Voltage: .....85 to 175Vac
Output:
Voltage regulation: .....+/- 10% over input voltage range
Power at 50°C:.....1100W/VA

>230Vac Model
Battery string voltage:.....48Vdc
Nominal voltage: 230Vac
Nominal frequency:.....Auto-sensing
Input:
Current:.....5.1A nominal
Voltage range: .....150 to 328Vac
Output:
Voltage regulation .....+/- 10% over input voltage range
Power at 50°C:.....1100W/VA

Mechanical

Dimensions:
mm:.....133H x 394W x 222D
inches:.....5.22H x 15.5W x 8.75D
Weight:.....16kg (35lbs)

Environmental

Operating temp range*:.....-40 to 74°C (-40 to 165°F)
Audible noise @ 25°C:.....45dBa @ 1 meter (39in)
*Derates after 55°C

Performance

Typical output voltage THD: ..... <3%
Typical efficiency:..... >98% (resistive load)
Typical transfer time:..... <5ms
MTBF:
@ 0.0°C:.....246,206 hrs
@ 25.0°C:.....174, 955 hrs
@ 50.0°C:.....103,030 hrs

Power Connector Options

	Input	Output
120Vac Model		
Standard	Terminal Block	Terminal Block
Optional	Terminal Block	Terminal Block + Dual 5-15R
	IEC*	IEC*
230Vac Model		
Standard	Terminal Block	Terminal Block

*FXM models with IEC connectors come with 4 lines LCD display instead of the traditional 2 lines display

Agency Compliance

Electrical safety:.....UL1778, CSA 22.2 No 107.3-03

Marks: cSAus, CE**

EMI:.....Class A FCC/CISPR [EN 50091-2:1995]

*Ethernet SNMP card is standard on the 120Vac model and optional on the 230Vac model
**CE applies to 230Vac version only

FXM 2000

Rugged UPS Module

- 2000W/VA UPS module designed to operate in extreme environments and provide maximum flexibility while ensuring critical loads remain protected and running during power outages and other power disturbances
- Wide range Automatic Voltage Regulation (AVR) lengthens battery life by providing protection without transferring to backup mode during voltage surge or sag
- Independently programmable control and report dry contacts allow monitoring and controlling of key functions
- Temperature compensated battery charging protects batteries from overcharging or undercharging at extreme temperatures, extending the life of the battery
- Local and remote monitoring and control via RS232 port and Ethernet SNMP interface*
- UPS panels can be rotated, improving usability and viewing convenience

Consult your Alpha representative for P/N configurations

Electrical

>120Vac Model
Battery string voltage:.....48Vdc
Nominal voltage: 120Vac
Nominal frequency:.....Auto-sensing
Input:
Current:.....17.9A nominal
Voltage: .....85 to 175Vac
Output:
Voltage regulation: .....+/- 10% over input voltage range
Power at 50°C:.....2000W/VA

>230Vac Model
Battery string voltage:.....48Vdc
Nominal voltage: 230Vac
Nominal frequency:.....Auto-sensing
Input:
Current:.....9.4A nominal
Voltage range: .....150 to 328Vac
Output:
Voltage regulation .....+/- 10% over input voltage range
Power at 50°C:.....2000W/VA

Mechanical

Dimensions:
mm:.....133H x 394W x 222D
inches:.....5.22H x 15.5W x 8.75D
Weight:.....16kg (35lbs)

Environmental

Operating temp range*:.....-40 to 74°C (-40 to 165°F)
Audible noise @ 25°C:.....45dBa @ 1 meter (39in)
*120Vac module derates after 50°C. 230Vac module derates after 55°C

Performance

Typical output voltage THD: ..... <3%
Typical efficiency:..... >98% (resistive load)
Typical transfer time:..... <5ms
MTBF:
@ 0.0°C:.....246,206 hrs
@ 25.0°C:.....174, 955 hrs
@ 50.0°C:.....103,030 hrs

Power Connector Options

	Input	Output
120Vac Model		
Standard	Terminal Block	Terminal Block
Optional	Terminal Block	Terminal Block + Dual 5-15R
230Vac Model		
Standard	Terminal Block	Terminal Block

Agency Compliance

Electrical safety:.....UL1778, CSA 22.2 No 107.3-03
Marks:
EMI:.....Class A FCC/CISPR [EN 50091-2:1995]
*Ethernet SNMP card is standard on the 120Vac model and optional on the 230Vac model
**CE applies to 230Vac version only

Caltrans FXM UPS

Rugged UPS Module

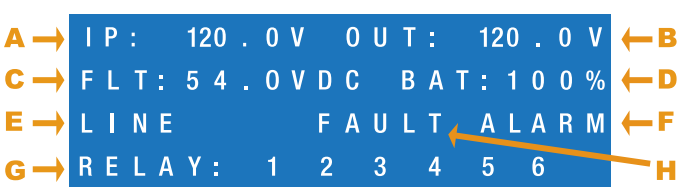
> The Caltrans FXM UPS has all the benefits of the standard FXM UPS plus:

- Caltrans approved, TEES 2009
- 4 lines LCD display
- Resettable output circuit breaker
- Input/Output, with quick disconnects and locking device

Consult your Alpha representative for P/N configurations

Display

The LCD control panel provides "at a glance" monitoring. This panel when used along with the CANCEL, SCROLL and SELECT buttons, allows you to program, make measurements, and troubleshoot the Alpha FXM.



LCD Screen

A. IP: Input voltage reading
B. OUT: Output voltage reading
C. FLT: Battery voltage when not charging
CHR: Battery voltage when charging
D. BAT: Battery capacity (0-100%)
E. Present operating mode (Line mode shown)
F. Text "ALARM" flashes if alarm triggered
G. RELAY: Energized relays numbers
H. Text "FAULT" flashes if fault triggered

Electrical

>120Vac Model

Battery string voltage:.....48Vdc
Nominal voltage: 120Vac
Nominal frequency:.....Auto-sensing
Input:
Current:.....9.8A nominal
Voltage: .....85 to 175Vac
Output:
Voltage regulation: .....+/- 10% over input voltage range
Power at 50°C:.....1100W/VA

Mechanical

Dimensions:
mm:.....133H x 394W x 222D
inches:.....5.22H x 15.5W x 8.75D
Weight:.....16kg (35lbs)

Environmental

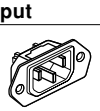
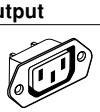
Operating temp range*:.....-40 to 74°C (-40 to 165°F)
Audible noise @ 25°C:.....45dBa @ 1 meter (39in)
*Derates after 55°C

Performance

Typical output voltage THD: ..... <3%
Typical efficiency:..... >98% (resistive load)
Typical transfer time:..... <5ms
MTBF:
@ 0.0°C:.....246,206 hrs
@ 25.0°C:.....174, 955 hrs
@ 50.0°C:.....103,030 hrs

Power Connector Options

120Vac Model

Input	Output
IEC* 	IEC* 

*FXM models with IEC connectors come with 4 lines LCD display instead of the traditional 2 lines display

Agency Compliance

Electrical safety:.....UL1778, CSA 22.2 No 107.3-03
Marks: .....$_{c}$CSA$_{US}$,CE**
EMI:.....Class A FCC/CISPR [EN 50091-2:1995]

*Ethernet SNMP card is standard on the 120Vac model and optional on the 230Vac model
**CE applies to 230Vac version only

Remote Monitoring Capability

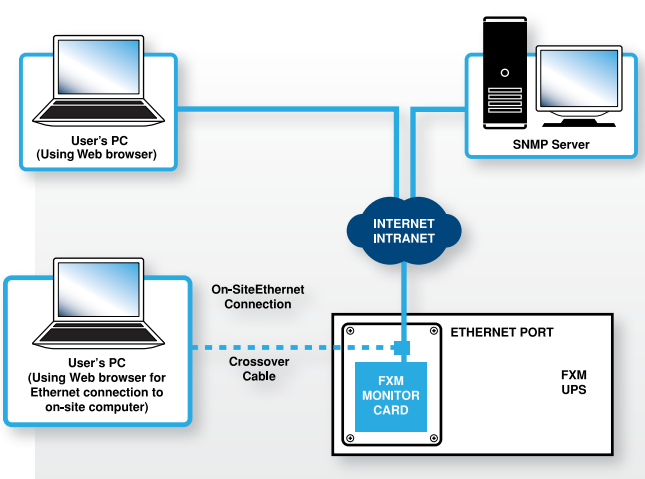
Alpha FXM, Micro, Micro Secure

Ethernet/SNMP (Simple Network Management Protocol) card

For greater effectiveness, control and communication over your UPS system, the Ethernet/SNMP card is factory installed and allows for communication with the Alpha UPS remotely through a web based interface. The Ethernet/SNMP card is powered by the UPS batteries eliminating the need for an external power source. The communication card is capable of providing notifications to four different email addresses and to devices such as your PC or smart phone. Outgoing notifications can be customized with selectable severity levels and triggered by events, faults and/or alarms.

Advantages of using Simple Network Management Protocol

- SNMP allows an administrator to easily and simultaneously manage key remote devices from different vendors using the same tools and interface, lessening the need for truck rolls to sites that require constant monitoring
- SNMP offers long-term reporting capabilities, allowing monitoring for network trends over time and to take remedial action
- Triggered notifications such as e-mail can be used to alert administrators of alarms or system updates
- The ability to update firmware remotely and monitor another device and reset it (by cycling its power) if it does not respond to a query
- The Traffic Management Center (TMC) can communicate remotely with each UPS at all intersections



Alpha UPS Monitor

The Alpha user software is a graphical user interface (GUI) designed to help Alpha UPS users monitor, control and set various parameters for their UPS systems through a computer using a standard RS-232 connection or through the Internet when the UPS is equipped with an Ethernet/SNMP card. Users are able to read and display UPS events, warnings, date, time and relay configurations through this Windows-based environment. The software is an excellent maintenance and troubleshooting tool that automatically updates information every five seconds and records events and warnings with time/date stamps. The UPS event log can be downloaded to your PC via the user interface.

Get real-time notification of every alarm and fault that occurs so that you are immediately in a position to take action. Easy to customize to your exact needs, the Ethernet edition allows you to set your own notification preferences via PC and receive notifications to any PC, smart phone, or any device that accepts email.

Alpha Transfer Switches

Outdoor Solutions

Automatic Transfer Switch

Universal Automatic Transfer Switch

>120V/30A
>230V/16A

Alpha's Universal Automatic Transfer Switch (UATS) is designed as a three stage bypass switch that allows for the UPS to be bypassed and still maintain the ability to keep batteries fully charged.

It acts as a fail-safe device by switching the critical load to the utility line should a fault occur in the UPS. The UATS ensures that clean power is always provided to the critical load, ensuring that your mission-critical equipment always remains running in the event of an outage. This transfer switch also includes a standard manual bypass switch which eliminates costly equipment downtime while servicing the UPS or replacing the batteries.

Automatic Generator Transfer Switch

Universal Generator Transfer Switch

>120V/30A
>230V/16A

Alpha's Universal Generator Transfer Switch (UGTS) automatically transfers the input to the UPS from the utility line to a portable AC generator.

The UGTS allows the generator to recharge the batteries and ensure your mission - critical equipment remains in operation during extended power outages. For manually connecting or disconnecting a generator, a standard switch is included.

Rack Mount Options

Other Mounting Options

>Wall mount kit
>Rack mount kit

Can be configured with UATS, UGTS, surge option and/or receptacle plate for heating mats.

Universal Automatic Transfer Switch Specifications (UATS)

Power Module		120Vac Model	230Vac Model
Nominal voltage		120V	230V
Nominal frequency		60Hz	50Hz
Input current		30A	16A
Output current		30A	16A
Output power at 40°C		3600W/VA	3600W/VA
General Specifications			
Input voltage range		102V minimum for auto transfer	196V minimum for auto transfer
Output voltage range		Same as Input voltage	
Maximum charger current		Not applicable	
Mechanical			
Dimensions	mm	81.3H x 134.6W x 152.4D	
	inches	3.25H x 5.3W x 6.0D	
Weight		1.6kg (3.5lbs)	
Environmental			
Operating temperature		-40 to 74°C (-40 to 165°F)	
Standard Features			
UPS (auto transfer) and bypass manual selector		Optional transfer switch status dry contact	
UPS supply switch (circuit breaker) for UPS servicing			
Auxiliary output for heater mat hook up with fuse protection and spare fuse			
Agency Compliance			
CAN/CSA C22.2 No.107.3-05, UL1778 4th Edition Uninterruptible power systems, CE - As component type for FXM UPS family and Micro UPS family (when enclosed in a box).			
EMC: Not applicable			

Universal Generator Transfer Switch Specifications (UGTS)

Power Module		120Vac Model	230Vac Model
Nominal voltage		120V	230V
Nominal frequency		60Hz	50Hz
Input current		30A	16A
Output current		30A	16A
Output power at 40°C		3600W/VA	3600W/VA
General Specifications			
Input voltage range		102V minimum for auto transfer	196V minimum for auto transfer
Output voltage range		Same as Input Voltage	
Maximum charger current		Not Applicable	
Mechanical			
Dimensions	mm	81.3H x 134.6W x 152.4D	
	inches	3.25H x 5.3W x 6.0D	
Weight		1.6kg (3.5lbs)	
Environmental			
Operating temperature		-40 to 74°C (-40 to 165°F)	
Standard Features			
Generator/line manual selector; optional transfer switch status dry contact			
Agency Compliance			
CAN/CSA C22.2 No.107.3-05, UL1778 4th Edition Uninterruptible power systems, CE - As component type for FXM UPS family and Micro UPS family (when enclosed in a box).			
EMC: Not applicable			

Alpha Outdoor Traffic Enclosure Solutions

Alpha outdoor enclosures are engineered to meet the highest industry operating standards for power equipment, ensuring an extended life and enhanced reliability of the electronics and batteries. All Alpha outdoor enclosures are equipped with thermal control systems that maintain temperatures well within the specified operating ranges of internally mounted equipment. When an Alpha outdoor enclosure, power products and batteries are combined as a system, the result is an optimally designed, highly-reliable and efficient outdoor power plant that provides easy installation and long term operation in a single outdoor cabinet design.

Alpha Outdoor Enclosure Side Mount 6 (S6)

Alpha's rugged outdoor rated (NEMA 3R) traffic solution, designed to protect internal components from harsh outdoor elements. The tough aluminum enclosure is designed to neatly accommodate a UPS module, transfer switches and four (4) AlphaCell™ 220 GXL batteries (BCI Group 31), with additional room for other components that may be required. This new and improved traffic specific enclosure features a number of advancements on previous models, including stainless steel door handle, integrated lock and latch, integrated document holder and an angled generator plug with water tight generator door (generator plug option).

Alpha Outdoor Enclosure Side Mount 10 (S10)

Alpha's largest outdoor rated (NEMA 3R) traffic solution, designed to Caltrans specification for locations requiring Caltrans'-approved product. With similar attributes to the Alpha Side Mount 6 enclosure, the S10 features an extra compartment for customer equipment and meets traffic standard 336 bolt patterns for pad mount installations.

Alpha Multi Mount Outdoor Enclosure (MMOE)

MMOE is a cost-effective and versatile traffic enclosure ideal for space constrained intersections. The Multi Mount can be pole, host, wall, or pedestal mounted and can accommodate Alpha's FXM UPS and up to four AlphaCell™ 85GXL or 195 GXL front terminal batteries. With a small form factor, the Multi Mount is the perfect choice for intersections where limited real estate and need for discretion are key challenges.

Missouri City takes action to prevent "Dark Intersections"

CUSTOMER SUCCESS STORY

June to November is the official hurricane season in the State of Texas, USA. Located on the Gulf Coast of Texas, Missouri City often suffers from severe storms and hurricanes that would often leave traffic intersections "dark". These power outages, combined with other power grid failures, have a negative impact on both the safety of the city's drivers and the budget of the traffic department. Each power failure at an intersection requires that a crew be deployed to manually supply generator power to the signal control cabinet until power was restored. Kevin Cummings, from the City of Missouri City (Traffic Division) recognized how Alpha's Battery Backup Systems (BBS) put an immediate end to these problems.

"With the implementation of the Alpha Battery Backup Systems, we have been able to cut down on after-hours calls. The response time is immediate with the BBS and the cost savings of not running a truck out are invaluable. The city and our traffic doesn't miss a beat due to power failure anymore.

Alpha has an array of advantages that we use. First of all, the L.E.D. screen and menu options are second to none. I am able to record and track all events and faults as they happen in real time. I also like the generator relay switch that makes it easy to plug in a generator if we are looking at an extended period of no power. It's fast and easy.

The quality, reliability and versatility are incredible. The units run as advertised and I have not had one return unit from the field. We currently have around forty BBS systems in use and they make our jobs easier and they keep the community safe and our traffic efficient. After initial setup, we don't worry about them.

I have, and will continue to recommend the Alpha BBS product line to everyone in the market for a dependable alternative power solution."

Kevin Cummings, I.T.S.
City of Missouri City, Traffic Division,
Texas

S6

Outdoor Enclosure

> Traffic grade aluminum enclosure protects battery backup power systems from outdoor elements
> Various mounting options (including pole-mount) provide a flexible solution for traffic applications
> Large sun shield reduces solar heat load inside the cabinet
> Thermostat controlled fan and louvered vents ensure reliable operation in high temperatures
> 180° stainless steel piano hinged door (optional left or right orientation) with two locking open positions makes internal component installation and maintenance easy and convenient
> Three-point latching mechanism with Corbin Type 2 lock (or optional Best lock) for maximum security

Consult your Alpha representative for P/N configurations

Mechanical

Dimensions:
mm:.....1220H x 419W x 419D
inches:.....48H x 16.5W x 16.5D
Weight:.....34kg (75lbs)
Construction:.....High strength corrosion resistant aluminum
Finish:.....Natural aluminum
Equipment space:.....8RU space (without generator inlet) with two (2) battery shelf
Equipment rails:.....EIA standard 19" (vertical)
Cable entrance:.....Bottom of enclosure: 1 x 76mm (3") dia. knock-out

Hardware

Hinge type:.....Stainless steel piano hinge
Door prop:.....Aluminum rod, 2 locking open positions
Handle:.....Stainless steel handle with padlock fitting for extended life and improved look
Door latch:.....3 point latch with integrated Corbin Type 2 lock (or optional Best lock) for maximum security

HVAC

Cooling:.....Thermostat controlled 48Vdc fan, 100 cfm or better, ON at 49°C (120°F) Off at 32°C (89°F)
Ventilation:.....Door installed louvers

Environmental

Temperature:
Operating:.....-40 to 46°C (-40 to 115°F)
Storage:.....-40 to 85°C (-40 to 185°F)

Installation

Access:.....Removable bottom shelf for easy wiring access

Maintenance

Door installed louver:.....Equipped with washable filter
Other:.....Bug screen protected top vent

Enclosure Options

Mounting:.....Side mount (standard) - designed to mount to the side of most traffic enclosure cabinets
Ground mount kit (optional)
Pole mount kit (optional)

System Specifications (as shown)

- 2 Battery shelf with 4x AlphaCell 220GXL batteries
- FXM1100 UPS
- Universal automatic transfer switch
- Universal generator transfer switch

>System Options

- Generator support: locking generator access door and L5-30 F1 plug
- AlphaGuard™ battery balancer
- Battery heater mats
- Tamper switch
- Tilt switch
- Door activated interior light
- "On Battery" indicator light

Agency Compliance

CSA/UL, CE:.....UL50E/C22.2 No.94
NEMA rating:.....3R

S10

Outdoor Enclosure

> Caltrans approved product
> Additional shelf allows for customer furnished equipment inside the enclosure
> Large battery space allows for up to twelve BCI Group 22 batteries or four BCI Group 27 batteries for longer runtime
> Large sun shield, thermostatically controlled fan and louvered vents ensure reliable operation in high temperatures
> 180° stainless steel piano hinged door with two open positions makes installation and maintenance easy and convenient
> Three-point latching mechanism with integrated Corbin Type 2 lock for maximum security
> Designed for outdoor or secure indoor applications

Consult your Alpha representative for P/N configurations

Mechanical

Dimensions:
mm:.....1422H x 660W x 305D
inches:.....56H x 26W x 12D
Weight:.....52.16kg (115lbs) no options
Construction:.....High strength corrosion resistant 0.125" thick aluminum
Finish:.....Anodized aluminum
Equipment space:.....6RU

Hardware

Hinge type:.....Stainless steel piano hinge
Door prop:.....Aluminum rod, 2 Lock-out positions
Handle:.....Stainless steel handle for extended life and improved look
Door latch:.....3 point latch with integrated Corbin Type 2 lock or optional best lock for maximum security
Equipment shelves:.....4 equipment shelves

HVAC

Cooling:.....Thermostat controlled 48Vdc fan, 100 cfm or greater, ON at 49°C (120°F) Off at 32°C (89°F)
Ventilation:.....Door installed louvers

Environmental

Temperature:
Operating:.....-40 to 46°C (-40 to 115°F)
Storage:.....-40 to 85°C (-40 to 185°F)

Installation

Access:.....Removable bottom shelf for easy wiring access

Maintenance

Door installed louver:.....Equipped with washable filter
Other:.....Bug screen protected top vent

Enclosure Options

Mounting:.....Side mount (standard) - designed to mount to the side of most traffic enclosure cabinets

System Specifications

- 4x Alphacell 85GXL batteries
- FXM2000 UPS
- Universal automatic transfer switch

>System Options

- Best lock
- Universal automatic transfer switch
- Universal generator transfer switch
- AlphaGuard™ battery balancer
- Battery heater mats
- Ground mount kit
- Tamper switch
- Door activated interior light
- "On Battery" indicator light

Agency Compliance

NEMA rating:.....3R

Multi-Mount Outdoor Enclosure - Traffic

Outdoor Enclosure

> Designed for outdoor or secure indoor applications
> Traffic grade aluminum enclosure protects battery backup power systems from outdoor elements
> Various mounting options (including pole-mount) provide a flexible solution for space constrained traffic applications
> Large sun shield reduces solar heat load inside cabinet
> Thermostat controlled fan and louvered vents ensure reliable operation in high temperatures
> 180° stainless steel piano hinged door makes installation and maintenance easy and convenient
> Three-point latching mechanism with Corbin Type 2 lock for maximum security

Consult your Alpha representative for P/N configurations

Mechanical

Dimensions:
- mm: 687H x 559W x 457D
- inches: 27H x 22W x 18D

Weight: 27.2kg (60lbs)
Construction: High strength corrosion resistant 0.125" thick aluminum
Finish: Natural aluminum
Equipment space: 7RU space with one battery shelf
Equipment rails: EIA standard 19"
Cable entrance:
- Bottom of enclosure: 1 x 3" diameter knock-out (2½" trade size)
  4 x 1.125" diameter knock-out (¾" trade size)
- Rear of enclosure: 4 x 1.125" diameter knock-out (¾" trade size)

Hardware

Hinge type: Stainless steel piano hinge
Door prop: Aluminum rod, 2 locking open positions
Door latch: 3 point latch with integrated Corbin Type 2 lock

HVAC

Cooling: Thermostat controlled 48Vdc fan, 100 cfm or better, ON at 49°C (120°F) Off at 32°C (89°F)
Ventilation: Door installed louvers

Environmental

Temperature:
- Operating: -40 to 46°C (-40 to 115°F)
- Storage: -40 to 85°C (-40 to 185°F)

Installation

Access: Front hinged door provides full front access

Maintenance

Door installed louver: Equipped with washable filter

Enclosure Options

Mounting: Pole, host, wall, or pedestal

System Specifications (as shown)

- Battery shelf with 4x AlphaCell™ 85GXL batteries
- FXM2000 UPS
- Universal automatic transfer switch

>System Options
- Universal generator transfer switch
- AlphaGuard battery balancer
- Battery heater mats
- Transient voltage surge suppression device

Agency Compliance

NEMA rating: 3R

BSM 4

Battery Side Module for Existing Enclosures

- > Traffic grade aluminum enclosure protects batteries from outdoor elements
- > Cost-effective method of adding 48Vdc standby capacity to any existing ground mount enclosure
- > Engineered to minimize temperature differential between batteries
- > Available in natural aluminum finish

Consult your Alpha representative for P/N configurations

Mechanical

Dimensions:
- mm:.....1220H x 495W x 222D
- inches:.....48H x 19.5W x 8.75D

Weight:.....17.3kg (38lbs)
Construction:.....0.125" High strength aluminum
Finish:.....Natural aluminum
Equipment space:.....Accommodates 4xAlphaCell 220GXL (Case 31) batteries

Hardware

Door latch:.....Corbin lock for maximum security

HVAC

Ventilation:.....Louvered vents on front door

Installation

Access:.....Lift-off front door provides easy wiring access

Agency Compliance

NEMA rating:.....3R

City Officials in Dallas, Texas Save Lives by Reducing Intersection Blackouts

Case Study

The City of Dallas is taking action to improve the safety of its motorists by committing to install Alpha Uninterruptible Power Systems at all 1300 of its intersections. As many states and cities around the United States have discovered, it takes very little to cause a power outage that directly impacts the safety and efficiency of a traffic intersection. On July 2011, The Dallas Morning News reported that in East Dallas, it only took one tree limb blown into power lines to knock out power for several blocks. The relatively small scope of this power failure belies its significance given that 2 lives were tragically lost in a motor vehicle accident, thought to have been caused by the inoperative traffic light at the scene of the fatality.

The City of Dallas is taking action to improve the safety of its motorists by committing to install Alpha Uninterruptible Power Systems at all 1300 of its intersections

When considering the use of UPS at intersections, most signal groups simply consider the consequences of larger power outages as a deciding factor. What is often not taken into account is that the smaller outages can easily result in similar costly outcomes. An example of this is that drivers are generally more aware of a power outage when a whole region is affected, and drive more cautiously. The same drivers are less aware and prudent when the outage is limited to a small area.

An Alpha UPS traffic solution features a fully-configured system comprising of an AC UPS module, transfer switch and batteries; housed in a compact (yet easily serviceable) weather-hardened steel cabinet. Amongst its many benefits is keeping traffic intersections powered and traffic flowing safely for 8 hours or more (easily exceeding standard run time requirements for most state or municipal traffic authorities) in the event of a power outage or disruption. Dallas City officials understand the benefits that a UPS battery backup system provides, and are proactively investing in the protection of their citizens. The City of Dallas plans to have all of the Traffic UPS systems installed within three years or less, starting in the 3rd quarter of 2012.

AlphaCell™ Gold HP

GOLD-HP GelCell Batteries

> High-performance Silver Alloy for maximum life expectancy
> Longer runtime for demanding outdoor environments
> 100% runtime capacity out-of-box – No cycling required
> Maintenance-free threaded inserts – No periodic retorquing
> Up to 6 year full warranty
> Wide operating temperature range

Nominal Specifications[4]

Model		220 GOLD-HP	195 GOLD-HP
P/N		**181-233-10**	**181-232-10**
Warranty[1]		Up to 6 years[2]	Up to 6 years[2]
Service life		Extended	Extended
Typical runtime[3]		220 mins	195 mins
Battery Type		Sealed Valve Regulated Lead Acid	Sealed Valve Regulated Lead Acid
Heat resistant		Extreme	Extreme
Hydrogen emission		Low	Low
Terminals		Threaded insert ¼" - 20 UNC	Threaded insert ¼" - 20 UNC
Cells per unit		6	6
Voltage per unit		12.8	12.8
Conductance value		1175	1100
Max. discharge current		900A	900A
Short circuit current		2800A	2600A
10 Second volts @ 100A		11.4	11.3
Impedance @ 60Hz (Ohms)		0.0050	0.0050
Nominal capacity at 20hrs: (to 1.75VPC)		109Ah	100Ah
Nominal capacity at 20hrs: (to 1.70VPC)		110Ah	102Ah
BCI group size		31	31
Mechanical			
Dimensions w/ terminals	mm	215.4H x 340.9W x 172.7D	215.4H x 340.9W x 172.7D
	inches	8.48H x 13.42W x 6.80D	8.48H x 13.42W x 6.80D
Weight		33.2kg (73lbs)	30.5kg (67lbs)
Environmental			
Discharge		-40 to 71°C (-40 to 160°F)	-40 to 71°C (-40 to 160°F)
Charge (with temp compensation)		-23 to 60°C (-9.4 to 140°F)	-23 to 60°C (-9.4 to 140°F)
Float charging voltage		13.5 to 13.8Vdc	13.5 to 13.8Vdc
AC ripple charger		0.5% RMS or 1.5% of float charge voltage recommended for best results. Max. allowed = 4% P-P	

Notes:
1. Warranty varies by country and region. Warranty valid only when used with Alpha approved Power Supplies, Chargers and Enclosures.
2. In North America warranty is 6 years when used with Alpha approved Power Supplies, Enclosures and AlphaGuard Charge Management. 5 years if AlphaGuard is not used. See AlphaCell Users Guide for Additional Details.
3. Runtimes calculated using a 25A DC constant current load.
4. Dimensions at top of battery.

AlphaCell™ GXL

Gel Top-Terminal Batteries

- > High-performance silver alloy for maximum life expectancy
- > Longer runtime for demanding outdoor environments
- > 100% runtime capacity out-of-box – No cycling required
- > Maintenance-free threaded inserts – No periodic retorquing
- > Up to 5 year full warranty
- > Wide operating temperature range

Nominal Specifications

Model		220 GXL	195GXL	165GXL	85GXL-HP
P/N		**181-231-10**	**181-230-10**	**1810015**	**181-213-10**
Warranty[1]		Up to 5 years[2]	Up to 5 years[2]	Up to 5 years[2]	Up to 5 years[2]
Service life		Extended			
Typical runtime[3]		221 mins	196 mins	165 mins	85 mins
Battery type		True gel cell and silver alloy grid battery technologies			
Heat resistant		Extreme			
Hydrogen emission		Low			
Terminals		Threaded insert ¼" - 20 UNC			
Cells per unit		6	6	6	6
Voltage per unit		12.8V	12.8V	12.8V	12.8V
Conductance value		1175	1100	1000	600
Max. discharge current		900A	900A	800A	600A
Short circuit current		2800A	2600A	2500A	2200A
10 Second volts @ 100A		11.4	11.3	11.2	10.8
Impedance @ 60Hz (Ohms)		0.0050	0.0050	0.0055	0.0065
Capacity at 20hrs (to 1.75VPC)		109Ah	100Ah	86Ah	50Ah
BCI group size		31	31	27	22
Mechanical					
Dimensions (w/terminals)	mm	215.4H x 340.09W x 172.7D	223.5H x 337.8W x 172.7D	223.5H x 337.8W x 172.7D	205.6H x 228.3W x 138.3D
	inches	8.48H x 13.42W x 6.80D	8.5H x 13.4W x 6.8D	8.5H x 13.4W x 6.8D	8.1H x 5W x 5.5D
Weight		33.2kg (73lbs)	30.5kg (67lbs)	30.5kg (67lbs)	18kg (39.6lbs)
Environmental					
Discharge		-40 to 71°C (-40 to 160°F)			
Charge (w/temperature compensation)		-23 to 60°C (-9.4 to 140°F)			
Float charging voltage		13.5 to 13.8Vdc			
AC ripple charger		0.5% RMS or 1.5% of float charge voltage recommended for best results. Max. allowed = 4%V P-P			

AlphaCell HP Amp hour ratings in Amps (end voltage 1.75VPC @ 25°C/77°F)							
Hours	1	2	3	4	8	10	20
220GXL	66.2	79.2	85.5	89.6	98.4	100	109
195GXL	61.2	70.4	75.6	78.8	86.4	89	100
165GXL	55.9	65.6	70.5	73.6	80.0	82	86
85GXL	33.2	37.6	39.9	41.6	45.6	46	50

Notes:
1. Warranty varies by country and region. Warranty valid only when used with Alpha approved Power Supplies, Chargers and Enclosures.
2. In North America warranty is 5 years when used with Alpha approved Power Supplies, Enclosures and AlphaGuard Charge Management. 4 years if AlphaGuard is not used. See AlphaCell Users Guide for Additional Details.
3. Runtime calculated using a 25A DC constant current load.

AlphaCell™ AGM

Top and Front Terminal Batteries

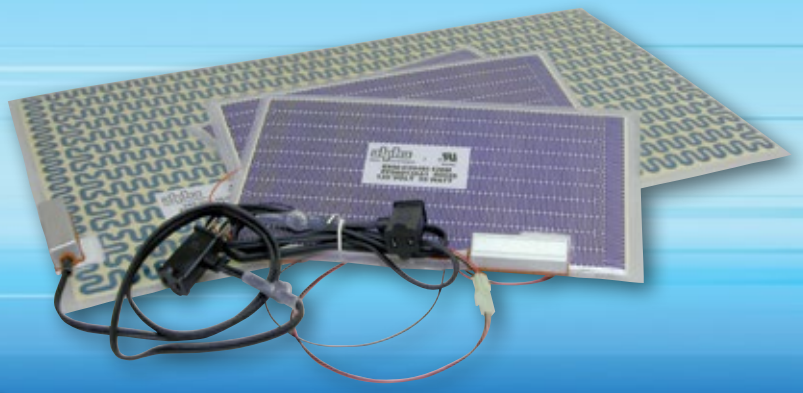
> Designed for indoor and outdoor standby applications
> 100% out-of-box runtime capacity
> Maintenance-free threaded inserts
> 100% replacement warranty
> Convenient carrying handle standard on all models

Nominal Specifications

Model		AlphaCell™ 160 AGM (Top Terminal)	AlphaCell™ 135 AGM-Premium
P/N		**1810017**	**1810043**
Warranty		1 year full replacement[1]	Up to 4 years[2]
Service life		Long	Long
Typical runtime[3]		160 mins	135 mins
Battery Type		Sealed Valve Regulated Lead Acid	Sealed Valve Regulated Lead Acid
Heat resistant		Moderate	Moderate to High
Hydrogen emission		Low	Low
Terminals		L Type with .28" hole	Threaded insert ¼" - 20 UNC
Cells per unit		6	6
Voltage per unit		12.8V	12.8V
Conductance value		1300	1125
Max. discharge current		800A	800A
Short circuit current		3300A	3100A
10 Second volts @ 100A		11.6	11.5
Impedance @ 60Hz (Ohms)		0.0040	0.0050
Capacity at 20hrs (to 1.75VPC)		88Ah	75Ah
Mechanical			
Dimensions w/terminals	mm	229.8H x 317.8W x 173.4D	203.6H x 260.5W x 173.4D
	inches	9.05H x 12.57W x 6.83D	8.02H x 10.26W x 6.83D
Weight		28kg (62lbs)	24.9kg (54.8lbs)
Environmental			
Discharge		-40 to 71˚C (-40 to 160˚F)	-40 to 71˚C (-40 to 160˚F)
Charge (with temp compensation)		-23 to 60˚C (-9.4 to 140˚F)	-23 to 60˚C (-9.4 to 140˚F)
Float charging voltage		13.5 to 13.8Vdc	13.5 to 13.8Vdc
AC ripple charger		0.5% RMS or 1.5% of float charge voltage recommended for best results. Max. allowed = 4% P-P	

Current Discharge Ratings Table in Amps (end Voltage 1.75VPC)					
Hours	1	2	4	8	20
160 AGM	54.3	31.0	17.8	9.9	4.40
135 AGM-P	49.0	28.0	15.5	8.63	3.75

Notes:
1.Warranty varies by country and region. Warranty valid only when used with Alpha approved Power Supplies, Chargers and Enclosures.
2. In North America warranty is 4 years when used with Alpha approved Power Supplies, Enclosures and AlphaGuard Charge Management. 3 years if AlphaGuard is not used. See AlphaCell Users Guide for Additional Details.
3. Runtime calculated using a 25A DC constant current load.



Battery Heater Mats

Extend Battery Runtime in Cold Weather

> Durable polyester construction
> Sealed on-mat electronics for maximum protection
> On-mat thermal switch and thermal fuse for redundant safety
> Insulated design directs heat to the batteries not the enclosure for a 30% reduction in power consumption
> Piggyback plug standard on 120V models

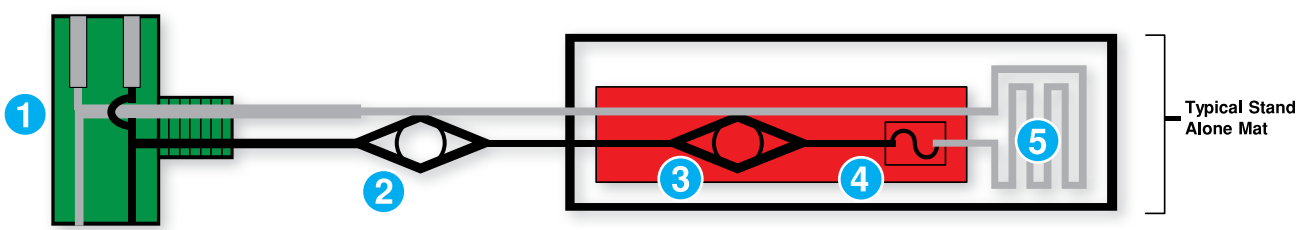
All Mats

The main power connector (1) on the heater mat is plugged into an AC source. In low temperature conditions the main control thermistor (2) will allow power to flow to the heater mat coil (5). The thermistor is mounted on the power cord so that it reacts to the enclosure temperatures and not the mat surface temperature. A secondary thermistor (3) is mounted on the mat with significantly higher temperature settings than the main thermistor (2). This thermistor keeps the mat from overheating during extended run periods. A thermal fuse (4) is a final fail safe device. The power connector (1) has an AC receptacle so that additional mats can be plugged in. Its parallel wiring keeps the failure of the first mat from affecting the operation of others in the string.

Line Cord Thermostat
Turn on Temperature: .....5°C
Turn off Temperature: .....15°C

Mat Mounted Thermostat
Over Temperature Off: .....50°C
Turn Back on: .....40°C
Thermal Fuse Rating: .....85°C

Optional Line Cord
Thermostat .....Turn on
Temperature: .....0°C
Turn off Temperature: .....10°C



Battery heater mats are an integral component in outdoor power solutions and need to be carefully integrated with the other system elements to ensure effective operations.

Please contact your Alpha representative to determine the proper battery heater mat required for your outdoor power system.

Battery Accessories

AlphaGuard™ Battery Charge Management System

AlphaGuard™ Battery Charge Management System

AG-CMT-3 AlphaGuard™ Charge Management SC, 36V String – including Battery interface cable

AG-CMT-4 AlphaGuard™ Charge Management SC, 48V String – including Battery interface cable

The AlphaGuard is a battery charge management system that monitors and protects your batteries for runtime optimization and longer battery life. CSA and UL approved, AlphaGuard allows you to replace single batteries rather than the whole string. It spreads charge voltage equally across batteries to maximize battery life and compensates for battery differences as they age.

Battery Testing Equipment

Celltron Essential Battery Testing Equipment

Alpha's battery testing equipment provides accurate information about the status of installed standby batteries allowing you to budget for early detection of failed or degraded batteries and for replacements with confidence.

A fast, reliable and affordable testing process.

Conductance testing, coupled with a simple utility load test, arms the operator with the quality of data necessary to know the status of installed standby batteries, allowing for detection and replacement before failure occurs and puts backup during an outage at risk.

Battery Spacer Clip

- Designed for use with most group 27 (165GXL) or 31 (3.5HP, 4.0HP, 195GXL, 220GXL) VRLA batteries
- Easy to install - clips to the top of the battery
- Increases battery life expectancy by providing critical battery spacing required for proper ventilation
- Accurately positions and secures the Remote Temperature Sensor (RTS)
- Strongly recommended for hot climates
- Designed to last over 30 years or lifetime of the equipment

AlphaGen™

DC Generator System

> 7.5kW options in either 36Vdc or 48Vdc configurations
> Cost effective extended runtime solution for Telecom powering applications
> Quiet operation, small size and low profile allow for easier installation in populated areas
> Eliminates large quantities of batteries otherwise required for extended runtime
> Designed for stand-alone or collocated powernode applications
> Built-in safeguards to protect the system, operators and the public
> Safe unattended operation designed to UL2200, NFPA 37, 54, 58 and 70 standards

Consult your Alpha representative for P/N configurations

Nominal Specifications

Model: 7.5kW
DC output voltage: ..... 52.0V ±0.5V @ no load 48V configuration
104.0V ±0.5V @ no load 96V configuration
DC output load regulation: 0.5V
Output current: ..... 52.0V @ 144A max
104V @ 72A max
Engine: ..... 624CC, Air cooled, Twin OHV 15hp
(using natural gas fuel)
RPM: (variable speed): ..... 2800 to 3600RPM
Acoustical noise
dBA 10' @ 100% rated load: ... 70.3Ave
dBA 20' @ 100% rated load: ... 64.3Ave
dBA 10' @ 70% rated load: 66.4Ave
dBA 20' @ 70% rated load: 60.4Ave

Performance / Features

Gas inlet pressure: ..... 0.5 to 2 PSI inlet pressure (see note 1)
Ign charger
Voltage: 13.5Vdc
Current: ..... 6A max
Remote interface length:
- 75ft max
- Distance depends upon proper installation, de-rating and wire gauge (see note 2)

Fuel system, controls& monitoring:
The controls and fuel system meet applicable sections of NFPA 37, 54 and 58 for automatic unattended operation of remotely located generators. Full system control and status monitoring included.
Sensors:
- Gas hazard
- Pad shear
- Water intrusion
- Tamper

>Safety shutdowns
All models:
- Low oil pressure
- Low fuel pressure shutdown (propane only)
- Gas hazard (propane or natural gas)
- Over temp
- Water intrusion
- Pad shear
- Over speed
- Over crank

Optional feature:
Cold start kit: Provides additional starting capability at temperatures below 17.7˚C (0˚F).

Mechanical

PN-6x Dimensions:
cm ..... 99H x 100W x 61D
inches ..... 39H x 39.25W x 24D
with optional pedestal ..... 144H cm (57H in)
Weight: 174kg (338lbs)
with optional pedestal 168kg (370lbs)
APU fuel consumption:
Natural gas: 1000 BTU/Ft.^{3} ..... 156ft^3/hr
Propane gas: 2520 BTU/Ft.^{3} 1.48gal/hr
54ft^3/hr
6.24lbs/hr
Exterior surface temperature ..... 65°C max (149˚F)
(meets requirements of UL/CSA)

Agency Compliance

UL1778
UL2200
NFPA 37/54/58/70
CSA C22.2 No.107.1
EMC/FCC Part 15 Class A

Note: Contact Alpha Technologies for the following:
1. Low pressure 2. Remote interface length distance

Additional Power Solutions

Alpha Micro Secure 100

The Alpha Micro Secure 100 is ideal for small outdoor UPS applications with loads up to 100W such as highway cameras or road signs. The UPS and batteries are enclosed in a durable outdoor NEMA 3R plastic case, which can be easily pole mounted and padlocked for security.

> Multiple voltage output configurations
> Can be wall or pole mounted
> Communication capabilities via RS-232 port or optional Ethernet /SNMP interface
> CSA/UL approved for safety
> Batteries Included

Alpha Micro 350 and 1000

The Micro Series provides a flexible, scalable solution for outdoor UPS applications up to 1000W. When power requirements grow, upgrade from the XL to the XL3 versions by simply adding an enclosure extension to accommodate additional batteries.

> Flexible system configurability
> Wide operating temperature of -40 to 74°C (-40 to 165°F)
> Extended battery runtime achievable with add-on cabinets
> Communication capabilities via RS-232 port or optional Ethernet /SNMP interface
> Six independently programmable control and report relays
> CSA / UL approved for safety

Alpha Flextra Node Ground Mount Enclosure

Offering ultimate protection against extreme environmental conditions, the Flextra Node Ground Mount enclosures are designed to accommodate our ruggedized CFR power modules. The CFR/Node Ground Mount system is often selected for more demanding traffic control power requirements such as warning signs, lane control, etc. Optional battery cabinets can be added for extended runtimes.

> Designed to handle extreme environmental conditions for ultimate protection
> Optional battery cabinets can add extended runtimes
> Accommodates CFR Power Modules for large power requirements

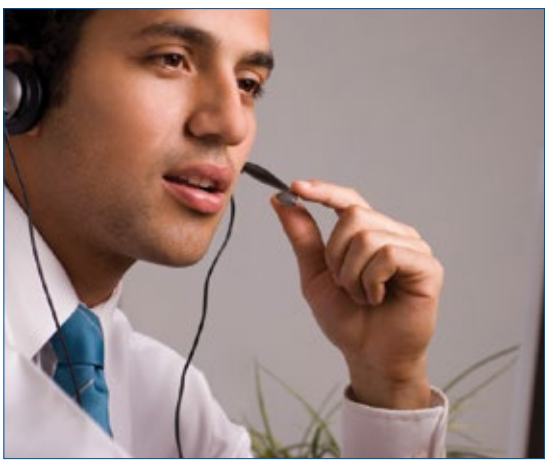
Alpha Solar Solutions

To maximize energy efficiency and extend battery backup time, custom Alpha solar solutions are designed to your exact specifications. Complement your existing Traffic equipment with solar-powered solutions for road sign backup monitoring, and a variety of other applications. Visit www.alpha.com/ops

Other Battery Options

Alpha can provide the right battery for every application, including AGM, GEL, Lithium Ion and NICAD. Contact our Battery experts for a recommendation on the right battery for your needs.

Services and Support



Technical Support

Regular business hours support is available for products under warranty Monday-Friday, 7am-5pm PST. All calls reaching voice mail are returned within 30 minutes.

For assistance, contact Alpha Technical Support:

> Toll free North America: 1-888-462-7487

> International: +1-604-436-5547

> Monday-Friday, 7am-5pm PST for regular inquiries

> 24/7 Emergency Support is available as part of your Alpha service plan

> To report a problem online, visit www.alpha.ca/report-a-problem

Installation and Commissioning

Alpha Service's team of engineers and technicians are experts in power system installation and possess a broad array of surveying, planning, materials management and EF&I skills/experience. Our team has national coverage and a long list of major customers/successful turn-key installation projects in central office, collocation facilities, head ends, customer premise, OSP, shelters, data centers and more. Alpha offers discounts on commissioning costs if purchased in conjunction with an Alpha Service Plan.

Maintenance and Repair

While Alpha products adhere to the highest quality standards for performance, construction and reliability, maintenance and repair of power equipment that is in regular use is a necessity to ensure optimal performance. When the time comes to service your power equipment call our technical services team for assistance. Alpha service plans and warranties are designed to help organizations plan for and minimize costs. Our Reliability Plus Plan includes regularly scheduled preventative maintenance visits that keep your equipment running smoothly and mitigate costly faults/failures before they happen.

Software, Manuals, Product Registration and Specifications

A wide range of documentation is available on our website to help you get the most from Alpha products. Visit our documents page online at www.alpha.ca. Please register your product with us at www.alpha.ca/register. By registering you will receive relevant future information about your product as well as access to regular product bulletins and advisories.

Factory Service Centers		
Western Canada and International Alpha Technologies Ltd. Burnaby, BC, Canada	**Central and Eastern Canada** Alpha Technologies Ltd. Mississauga, ON, Canada	**Northwest United States** Alpha Technologies Services Inc. Bellingham, WA, USA
Northeast United States Alpha Technologies Services Inc. Pennsauken, NJ, USA	**Southeast United States** Alpha Technologies Services Inc. Suwanee, GA, USA	**Asia-Pacific** PCM Electronics (Dong Guan) Co., Ltd. Liaobu Town, Dongguan City, Guangdong Province, China

Alpha Service			
Online http://www.alpha.ca/returns	**Toll free** 1.888.462.7487	**International** +1.604.436.5547	**Fax** +1.604.436.1233

UPS/BBS Selection Guide

Uninterruptible Power Supplies (UPS)/Battery Back-up System (BBS) selection guide for Traffic and ITS applications:
To help us design an Uninterruptible Power Supply for your traffic or ITS application, please review the following questions prior to contacting your Alpha representative.

What is the type of application?
a) Traffic intersection?
b) Intelligent Traffic System (ITS)?

What are the installation requirements?
a) Will the UPS and batteries be installed into an existing enclosure, traffic or other?
b) If installing into an existing enclosure, how will the UPS and batteries be mounted? rack, shelf or wall mounted?
c) Will you require a separate enclosure to house the UPS and/or batteries?
d) Will the enclosure be mounted to the side of an existing enclosure?
e) Will the enclosure be a standalone configuration mounted onto a customer provided foundation?
f) Will the enclosure be pole mounted?

If outside of North America, what is the voltage and frequency that your critical load operates at?
• 220, 110Vac? 50 or 60Hz? Other voltages?

What is the expected AC load that the UPS will be powering?
a) Is the load calculated or measured? Does your load vary per site or is it consistent throughout varied site locations?
b) Are your intersections completely LED's including the PED's or just partial?
c) If you have an ITS application that includes cameras, what input voltage is required for the specific cameras to be installed, 120 AC, 24 AC or a DC input?
d) Do all your loads require the same input voltage? If not, please note the different required voltages.
- For traffic intersections, Alpha Technologies recommends that a current reading be taken at each site or at least a sample of intersections to determine the largest potential load.

What is the battery backup time required when commercial power fails?
a) In minutes or 1, 2, 4 or 8 hours of full operation?
b) Will you require your intersection to go to red flash after a particular amount of battery runtime at full operation? Example: Full operation for 2 hours, then 3 hours of red flash.

What type of options and accessories have you considered?
a) Ethernet/SNMP option for remote UPS monitoring and management?
b) Generator compartment with generator connector and transfer switch, including police style door with type II lock.
c) External "ON BATTERY" red light?
d) Battery balancer/equalizer to ensure your batteries maintain an equal charge to extend the life of your battery string.
e) Tilt switch for emergency power off, should the enclosure be knocked of its base.

What are your warranty/service needs?
a) Extended depot warranty?
b) Annual service maintenance contract?

Your Power Solutions Partner

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Alpha Technologies Ltd.

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